

REMARKS

Claims 1-6, all the claims pending in the application, stand rejected. Claims 1, 5 and 6 are amended.

Support for the amendment can be found at page 4, lines 3-17 and page 25, lines 8-13 of the original specification.

Claim Rejections - 35 U.S.C. § 101

Claim 5 is rejected under 35 U.S.C. § 101 as being drawn to unpatentable subject matter. This rejection is traversed for at least the following reasons.

The Examiner refers to Supreme Court precedent and the *In re Bilski* case as a basis for rejecting the method claim. That precedent, particularly the *Bilski* case, defines a “machine or transformation” test for patentable subject matter. The Examiner observes that the original method steps are “of sufficient breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally or without a machine.”

The claim expressly focuses on a “method for displaying an image,” which necessarily requires the use of a machine. A step of displaying cannot be accomplished mentally, verbally or without a machine. Thus, the original claim satisfies the machine branch of the test. Moreover, the step of moving an object in three dimensional space necessarily relates to a transformation of the object, particularly as now claimed. Thus, the original claim clearly meets the “machine or transformation” test.

Nonetheless, in order to remove any basis for rejection and, Applicant submits, without unnecessarily limiting the claim, Applicant has added an affirmative recitation of a “display” and a “processor.” These structures clearly meet the test in *Bilski*.

On the basis of the foregoing explanation, this rejection should be withdrawn.

Claim Rejections - 35 U.S.C. § 112

Claims 1-4 and 6 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite. This rejection is traversed for at least the following reasons.

The Examiner notes that the recited limitations in claims 1-4 and 6 include “means-plus-function” limitations. The Examiner acknowledges that the written description discloses a system and respective structures for the system at pages 8 and 9, but the Examiner finds that there is no clear link or association between a disclosed structure and the claimed functions. The Examiner requires the Applicant to either amend the claims so that the limitations are no longer means-plus-function limitations or state on the record where the corresponding structure is set forth in the written description.

In reply, Applicant respectfully notes that the structure in Fig. 1 includes a microprocessor 14, in which processing section 16, main memory 26 and I/O processing section 30. These components combine to execute the processes illustrated in Figs. 11 and 12, based upon information stored in a DVD-ROM 25 and processed by a DVD reproduction section 24.

As explained at pages 21-25, the flowchart is executed by the game device 10 based on the program stored in the DVD-ROM 25. In the game device 10, the microprocessor 14 carries out game environment processing based on the program and game data read from the DVD-ROM 25. As explained with regard to step S103, the microprocessor 14 carries out geometry processing and, thereafter, carries out rendering processing in step S104. The microprocessor sends data resulting from said processing to the image processing section 16, as explained at page 22. The object exaggerated processing illustrated in Fig. 12 and described at pages 23-25 is conducted by a combination of software components, stored data in main memory 26 and DVD-ROM 25 as reproduced by section 24 and provided to the image processing section via I/O section 30.

Applicant finally notes that the Federal Circuit in recent decisions has held that the individual components of recited means-plus-function limitations may be a common hardware structure and separate software modules that provide processing in a flowchart. This only makes common sense in a software-based environment where efficiency and costs dictate that separate and independent hardware structures should not exist.

On the basis of the foregoing explanation, this rejection should be withdrawn.

Claim Rejections - 35 U.S.C. § 102

Claims 1-3, 5 and 6 are rejected under 35 U.S.C. § 102(a) as being anticipated by Kamiwada et al (U.S. 2004/0141014). This rejection is traversed for at least the following reasons.

Claim 1

As explained in the previous Amendment, the invention is intended to address a problem in a virtual 3-dimensional space containing moveable objects that are displayed and observed from a particular viewpoint. As an object changes position with regard to the viewpoint, based upon a normal relationship between a distance from the object and one of speed and distance of movement, the image represented to a observer may be unclear. Accordingly, the invention solves this problem by a display process as illustrated in Figs. 11 and 12, where an object is exaggerated in speed or distance of movement in three dimensional space when displayed. Specifically, at least one of (1) moving distance of the object in the three-dimensional space becomes longer as distance data becomes larger and (2) moving speed of the object in the three-dimensional space becomes slower as distance data becomes larger, as explained at page 11, line 25-page 12, line 10.

In this case, the “exaggeration” involves a change in a manner opposite to the normal relationship that would exist between distance and speed or distance of movement in three dimensional space. This change is based upon a magnification rate α and/or a trajectory change of rate β determined according to a distance L between a viewpoint 54 and a representative point 56 defined on a game character object 40, as illustrated in Fig. 5. Thresholds are used for instituting such exaggerated change, as summarized at page 14, line 22-page 20, line 8.

Amended independent claims 1, 5 and 6 express this concept by specifying that at least one of (1) moving distance of the object in the three-dimensional space becomes longer as distance data becomes larger and (2) moving speed of the object in the three-dimensional space becomes slower as distance data becomes larger, and displaying an image of the object moving in the virtual 3-dimensional space in an exaggerated manner.

Kamiwada et al

In framing the rejection, the Examiner points to Fig. 2 of Kamiwada et al for a structure that corresponds to the several “means-plus-function limitations that appear in the claims. In particular, the Examiner identifies the distance data calculation means as corresponding to the view determining part 104, that calculates the movement distance d by giving movement direction back to t obtained in step S124 to a view movement calculating part 107. The claimed “moving state determination means” is considered to be view movement calculating part 107 for determining a moving distance of the object in 3D space based on distance data, as explained at page 6, paragraph 101. The claimed “object moving means” is considered to correspond to the view determining part 104 for moving an object in virtual 3D space based on a moving distance of the object. Finally, the Examiner asserts that the “display means” corresponds to the display image generating part 105.

Exaggerated Image

On the basis of the foregoing description of the present invention, a key feature is the use of an object having one of speed and distance of movement within a three dimensional space that is NOT in a normal relation to a distance between the object and a viewing point. The generation of an image on the basis of such abnormal relationship between distance and at least one of speed and distance of movement results in an image that is “exaggerated.”

The Examiner asserts that an “enlarged zoom-in” corresponds to this feature. At page 5 of the Office Action, the Examiner notes that Kamiwada et al considers the conventional 3-dimensional display controlling apparatus as disclosed at page 1, paragraph 7 and asserts that Kamiwada improves over this type display so that objects to be observed and displayed based on a location relationship of link information and scale ratio in response to movement direction, such as zoom-in or zoom-out direction, as disclosed at page 2, paragraph 17. The Examiner refers to Fig. 16A as showing information objects 2031-2035 on a screen 2030 and comments that “when the viewpoint approaches along the information object 2034 being this sphere, the information object 2034 being this sphere is enlarged so that the information 2036 becomes visible,” as disclosed at page 10, paragraph 165.

According to Applicant's understanding of the Examiner's position, which is based upon the 3-dimensional data browsing apparatus of Fig. 14, the display example of a 3-dimensional data browsing screen in Fig. 15 and diagrams showing examples of changes of the 3-dimensional data browsing screen in the case of approaching a viewpoint to the information object in Figs. 16A-16D, neither of the cases where (1) the moving distance of the object in the three-dimensional space becomes longer as distance data becomes larger and (2) the moving speed of the object in the three-dimensional space becomes slower as distance data becomes larger is taught. Furthermore, there is not teaching of a use of an exaggerated image related to display of such abnormal moving distance or moving speed, as defined in the present application.

A careful reading of paragraph [0165] with reference to Fig. 16A indicates that as the viewpoint becomes closer to the object, the object itself is expanded and invisible items on the surface are made visible by expanding them as well. However, such expansion does not relate to speed or distance of movement of an object. There is no exaggeration in the manner taught in the present invention, where a moving distance becomes longer as a distance becomes larger (where normally moving distance would become shorter) or a moving speed becomes slower as distance becomes larger (where normally moving speed would become faster).

In order to express this feature literally, the claims have been amended.

Claim 2

This claim would be patentable for the reasons given for parent claim 1.

Claim 3

This claim would be patentable for reasons given with regard to parent claim 1.

Claims 5 and 6

These claims would be patentable because of amendments made to the claims similar to those added to claim 1.

Claim Rejections - 35 U.S.C. § 103

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kamiwada et al (U.S. 2004/0141014) in view of Moran (5,880,743). This rejection is traversed for at least the following reasons.

Claim 4

This claim would be patentable for the reasons given for parent claim 1, as Moran et al is not cited for changes based on distance data whereby the moving speed in three dimensional space becoming slower or moving distance in a three dimensional space becomes longer as distance data becomes larger, whereby an exaggerated image is displayed.

Moran et al

Again, the patent to Moran et al is cited for a teaching of the claimed “size information determination means” that determines a rate by which the object is enlarged or reduced as the size information of the object based on the distance data, and the object enlargement and reduction means enlarges or reduces the object having a predetermined size by the rate, with reference to the disclosure at col. 20, lines 33-41.

The cited disclosure concerns animation of changes to data in a display-oriented graphical editing system where an object or group of objects is displayed. Moran merely teaches a user control, based on freeform and/or a structured operation, of changes to a selected object such as movement to a new location or expansion/shrinking. The changes occur gradually at a visually apparent rate, rather than instantaneously. However, there is no teaching or suggestion that any such change may be based upon a distance between a viewpoint and an object or that the changes are to distance of movement or speed of an object. These are all user selected and controlled modifications of object size. Thus, Moran fails to remedy the deficiencies in Kamiwada et al.

In short, the basic invention is clearly patentable over the cited art since the fundamental concept of the invention is neither taught nor suggested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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